RSA ASSIGNMENT ON ARDUINO 30-10-24

1. **Distance Measurement Display:**
   Connect an ultrasonic sensor and a 7-segment display to the Arduino. Program it to measure the distance to an object in front of the ultrasonic sensor and display the result on the 7-segment display.

   https://www.tinkercad.com/things/d8C6UivsEhg-1distance-measurement-display?sharecode=y8P66XwXrN4cryv6AxAxaJSluJfysDBobwOtDFfF7EA

2. **Smart Distance Counter:**
   Connect both an ultrasonic sensor and a touch sensor to the Arduino. Display a counter on the 7-segment display that increments every time an object (such as a hand) crosses a specified distance threshold (detected by the ultrasonic sensor). Use the touch sensor to reset the counter.

   https://www.tinkercad.com/things/1dWrTBReydZ-2smart-distance-counter?sharecode=BNCi1wugL3cSIYqaObdWS6bOgBoKxmk6j3fp0HqWSsA

3. **Touch-Activated Range Finder:**
   Program the Arduino to take a distance reading from the ultrasonic sensor only when the touch sensor is activated. Display the measured distance on the 7-segment display and hold the value for 5 seconds before clearing.

   https://www.tinkercad.com/things/lo5GUYiFdFV-3touch-activated-range-finder?sharecode=W4Cx_dJbtxuiwlP9Am_-sRn5JggWYWLhwst2B7CAX9o

4. **Countdown Timer with Obstacle-Activated Reset:**

   Use the touch sensor to start a countdown on the 7-segment display. If the ultrasonic sensor detects an obstacle (within a specified range) during the countdown, reset the timer. Display "E" on the display if the countdown completes without interruption.

   https://www.tinkercad.com/things/13DX17akn1z-4countdown-timer-with-obstacle-activated-reset?sharecode=51pbpJFKXcbLMHa9NxXQmN0GuJN2pPFkcJ9HYlRFek0

5. **Digital Stopwatch:**
   Create a simple stopwatch using an LCD display and two buttons. Use one button to start/stop the stopwatch and the other to reset it.

   https://www.tinkercad.com/things/cW7dCEKz1CQ-5digital-stopwatch?sharecode=13gb19-XKySyin6PMhtsrMT-UiJAOIO4k23z5ExPXUI

6. **Motion-Activated Alarm:**
   Connect a PIR motion sensor to the Arduino and write code to sound a buzzer when movement is detected. Add a feature to log the timestamp of each detected movement in the Serial Monitor.

https://www.tinkercad.com/things/kccAXBUBCDU-6motion-activated-alarm?sharecode=z_MzKwipyrv2qn-yFoqiEb9TusTX1L0XOa39ztq7GhI

7. **Temperature Monitoring System:**
   Using a DHT11 or LM35 temperature sensor, create a temperature monitoring system that reads temperature data and displays it on the Serial Monitor. Adjust the code to send a warning message if the temperature exceeds a certain threshold.

   https://www.tinkercad.com/things/7bkcL5KgDg1-7-temperature-monitoring-system?sharecode=ktl0I7WaE7GZ4SpcbQSn7cjsf968Z5DCS1ADJGcH59Y

8. **People Counter with Direction Detection:**
   Place an IR sensor on either side of a doorway to count the number of people entering and exiting. Display the count on a 7-segment display. Use the ultrasonic sensor to confirm direction by measuring the time an object passes between the two IR sensors.

   https://www.tinkercad.com/things/8nkiO4Rf6SR-8people-counter-with-direction-detection?sharecode=u2SBFtbEsspDGMglfYIC_AcP4deL-tCzVKq8aEZ5I9Y

NOTE: TO Demonstrate use Tincker cad application(online)